HYDRODYNAMIC SCREWS



WAMGROUP

RONCUZZI®

RENEWABLE ENERGY

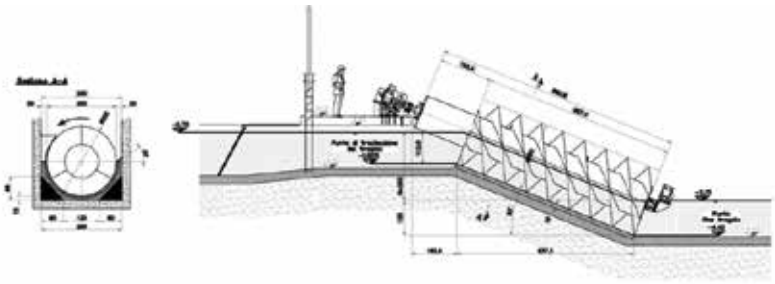


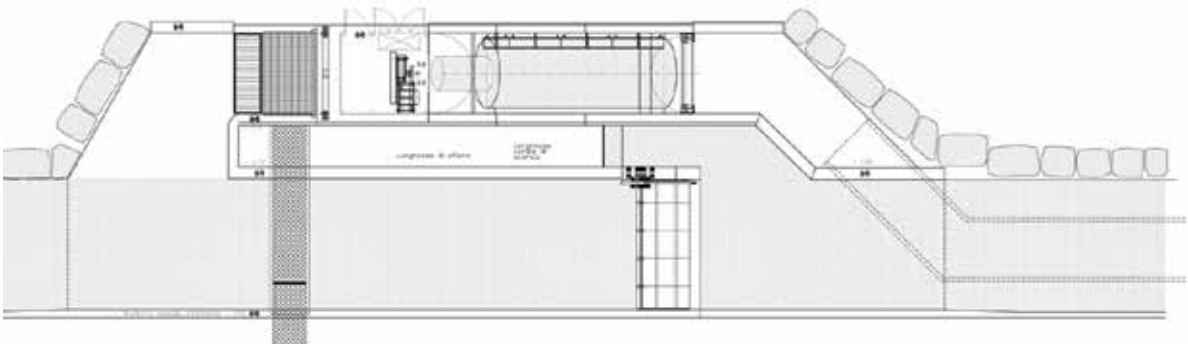


THE CONCEPT

PAE-type Hydrodynamic Screws by RONCUZZI® are systems designed for the production of electric energy. Inspired by the Archimedes screw, which traditionally has been used for lifting water, the Hydrodynamic Screw reverses the principle and exploits the difference of potential energy of water between two different points on its downhill course. The water, naturally flowing from its highest point, starts the Hydrodynamic Screw which transforms hydropower into electrical energy.

Hydrodynamic Screws exploit waterfalls of limited height and moderate flow rates ensuring an efficiency that cannot be matched by any other type of turbine. The minimum exploitable level drop is one metre, while flow rates may exceed 7,000 litres per second. For higher flow rates more screws can be installed in parallel. A single screw can produce up to 350 kWh.









WHY A HYDRODYNAMIC SCREW?

Generating electricity through a Hydrodynamic Screw means producing completely renewable energy, at the same time protecting the environment. A return on the investment is guaranteed. High efficiency, low environmental impact and easy-to-operate conditions offer particularly vast possibilities of application.

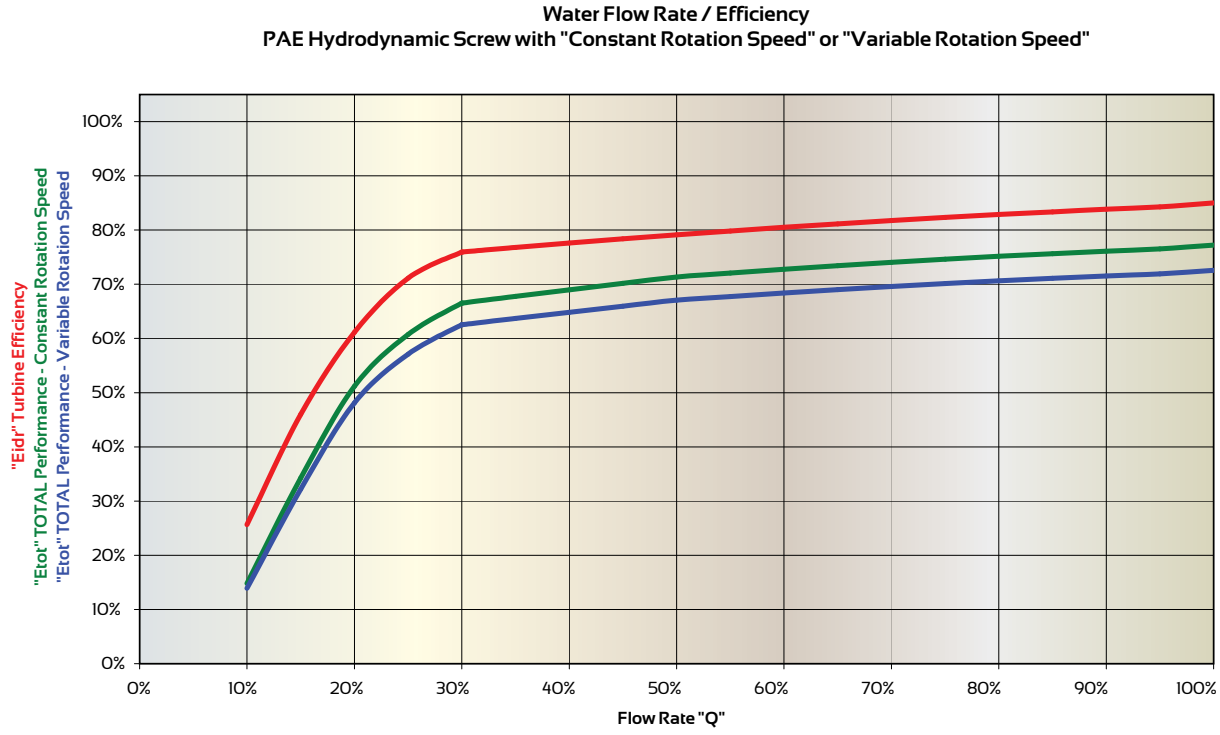
A Hydrodynamic Screw is a particularly cost-effective solution in the following conditions:

- To exploit process water in installations such as mills, paper mills and others;
- As a replacement for obsolete small turbines with high maintenance costs;
- As an alternative to low efficiency water wheels;
- At the water outlet of hydroelectric power plants;
- To take advantage of excess water in an existing intake;
- To exploit water power from rivers, streams, canals or aqueducts;
- At the outlet of water treatment plants.

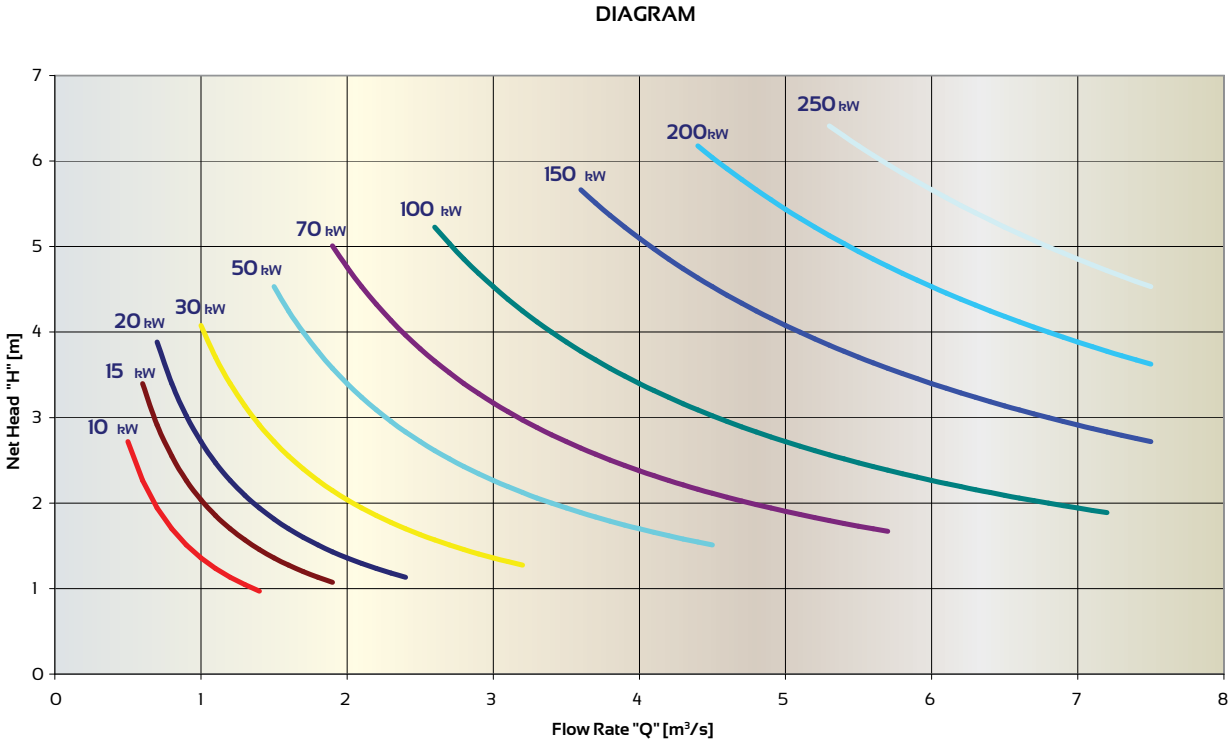




EFFICIENCY



POWER GENERATED



EXPERTISE










BENEFITS

PAE Hydrodynamic Screws use particularly low heads, ensuring high and constant efficiency, even in case of strong variations in water flow. To operate, they do not require any adjustment, since the screw automatically adapts to the network frequency and to the water flow.

There is no need for a fine screen or rake. Interventions for maintenance and cleaning are minimised, allowing use of the system for a longer period of time than systems featuring traditional turbines.

A wide range of control and data transmission systems enables remote operation. The information you may require is always available in real time.

Start-up of a RONCUZZI® Hydrodynamic Screw is considerably quicker than with any other type of turbine.

ENVIRONMENT

The environmental impact is minimal. Intake and outlet point are very close to each other. Flow diversion occurs without disturbing the natural watercourse and without the alteration of the surrounding environment.

Installations are environmentally friendly enabling fish to pass the system unharmed, ensuring overall preservation of flora and fauna.

PAE Hydrodynamic Screw installations are in perfect harmony with the environment limiting the visual impact on the landscape surrounding the plant.







SAFETY

Plants are designed to guarantee operation under highly safe conditions. Hydrodynamic Screw systems include:

- A safety gate with a hydraulic system to interrupt the water flow in case of an emergency;
- A grid barrier for intercepting large size solids.





ADDITIONAL EQUIPMENT

To ensure maximum versatility and top performance of the system, RONCUZZI® offers a number of additional equipment:

- Flap gates;
- Adjustable gate at water intake point;
- Solid waste discharge gate on the bottom of the channel.

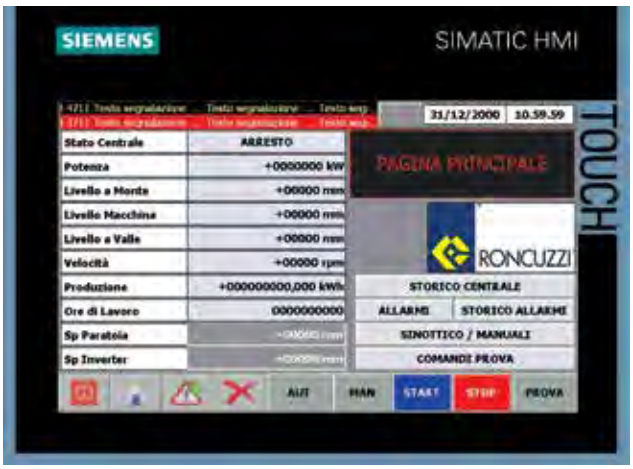


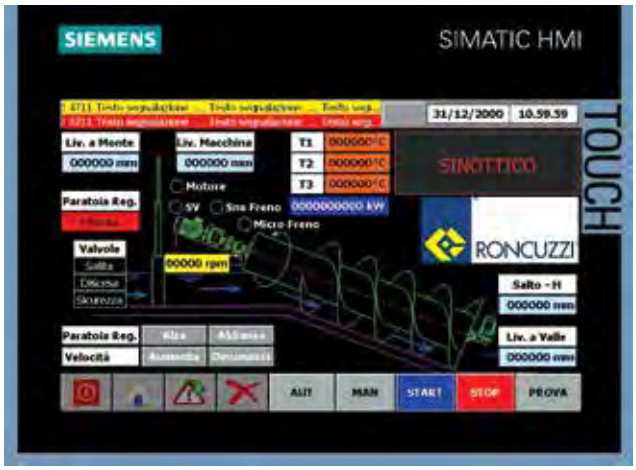




CONTROL SYSTEM

The system is managed by PLC with visualisation of the main electrical measurements on a touch screen operator panel.
In addition, a remote control system, available on request, enables monitoring of real-time data, as well as the request for professional assistance.





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